

## **FACT SHEET FOR NPDES PERMIT WA-004492-0**

### **Town of Wilbur**

#### **SUMMARY**

The city's wastewater facility is comprised of the collection system, wastewater stabilization ponds, chlorination system and a discharge to Goose Creek via an unnamed ditch. The wastewater facility is in the process of being upgraded in a phased manner. The collection system has been rehabilitated to correct infiltration and inflow problems. The evaluation of the infiltration and inflow reduction is ongoing. Aerators have been added to the first cell. The city is requesting proposals for consulting services.

Goose Creek is a tributary of Crab Creek and is currently classified as a Class B stream. Goose Creek is an intermittent stream with seasonal flows. Goose Creek does not support all the listed characteristic uses at all times due to the seasonal nature of stream flows. A study of Goose Creek has recently been concluded. During the period of the study the wastewater effluent impact on receiving waters was not significant enough to cause violations of water quality standards.

The effluent standards given in Chapter 173-221, "Discharge Standards and Effluent Limitations for Domestic Wastewater Facilities," water quality impacts of ammonia in the effluent and projected flows will be evaluated to arrive at final permit effluent ammonia limitations. The permit will contain provisions to reopen and modify the permit if appropriate.

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**INTRODUCTION**

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

<b>GENERAL INFORMATION</b>	
Applicant	Town of Wilbur
Facility Name and Address	Town of Wilbur Wastewater Treatment Facility P.O. Box 214 Wilbur, WA 99185
Type of Treatment:	Wastewater stabilization ponds with chlorination.
Discharge Location	Goose Creek via an unnamed ditch Latitude: 47° 46' 02" N                      Longitude: 118° 44' 36" W.
Water Body ID Number	19-43-03

## **BACKGROUND INFORMATION**

### *DESCRIPTION OF THE FACILITY*

The city's wastewater facility is comprised of the collection system, wastewater stabilization ponds, chlorination system and a discharge to Goose Creek via an unnamed ditch. The wastewater facility is in the process of being upgraded in a phased manner. The collection system has undergone a correction project to alleviate infiltration and inflow problems. Aerators have been added to the first aeration cell. The Town is requesting proposals for engineering services to consider operational concerns, a water balance, loss of water to ground via seepage and various wastewater treatment improvements. The Town's design goal is a seasonal discharge, winter and spring.

Goose Creek is a tributary of Crab Creek and is currently classified as a Class B stream. Goose Creek is an intermittent stream with seasonal flows. A study of Goose Creek has recently been concluded. During the period of the study the wastewater effluent impact on receiving waters was not significant enough to cause violations of water quality standards. Goose Creek does not support all the listed characteristic uses at all times due to the seasonal nature of flows. The seasonal nature of the stream is the primary defining characteristic. The stream bed substrate is also a significant defining characteristic.

### **HISTORY**

The initial wastewater treatment facilities were built in 1950. The original treatment works was a mechanical wastewater treatment plant. In the previous upgrade, 1971, the mechanical plant was abandoned and a new wastewater stabilization pond facility was built on the west side of town. Wilbur installed Solar Bee<sup>®</sup> aerators in the wastewater treatment lagoons in June 2002.

The population of the town was estimated at 875 in 1993. The 2000 census population was 914 and was anticipated to increase slowly. However the April 2003 population is estimated by the Washington State Office of Financial Management as 880.

<http://www.ofm.wa.gov/pop/poptrends/index.htm>

### **COLLECTION SYSTEM STATUS**

The collection system has undergone a correction project to alleviate infiltration and inflow problems. The collection system was also extended to pick up a portion of the town, known as South Hill, not previously served.

### **TREATMENT PROCESSES**

The wastewater treatment is provided in three wastewater stabilization lagoon cells. The lagoon cells were constructed with native soils including clays. The final treatment process is chlorination for disinfection. In any future upgrade, dechlorination needs to be added.

Wilbur installed Solar Bee<sup>®</sup> aerators in the wastewater treatment lagoons in June 2002. The Solar Bee<sup>®</sup> aerators improve the aeration of the water column in the lagoons and transforms the metabolism of organic matter from an anaerobic/facultative process to an aerobic process which can benefit the treatment process. In the spring 2003 discharge season there was a significant

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reduction in the amount of ammonia in the wastewater treatment plant's effluent. In the 2004 discharge season ammonia concentration were elevated in the first couple months of the seasonal discharge period. In a couple of sampling events the effluent ammonia concentration exceeded the influent ammonia concentration. It is suspected that ammonia is being released as stored biosolids are digested.

The 2004 inspection and comments by the operator and other city official suggest loss of wastewater to the environment to the groundwater. An analysis of the DMRs, records of precipitation and evapo-transpiration from neighboring locations indicate a significant potential loss of wastewater to ground (see appendix C).

DISCHARGE OUTFALL

Secondary treated and disinfected effluent is discharged from the facility via an unnamed ditch into Goose Creek. Data analysis indicate that approximately 32 MG is lost to ground without appropriate treatment (see appendix C).

RESIDUAL SOLIDS

The microbial mass and particulate matter are retained in the wastewater stabilization ponds (WSP) until removed as part of ongoing maintenance. For WSP this may vary from 10 to 20 years. The Wilbur does not currently have any headworks facilities to remove solid waste, grit and other debris.

*PERMIT STATUS*

The previous permit for this facility was issued on October 11, 1999. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD<sub>5</sub>), Total Suspended Solids (TSS), pH and Fecal Coliform bacteria. The permit also had final and interim effluent limitations for residual chlorine and ammonia.

An application for permit renewal was submitted to the Department on January 2, 2004 and accepted by the Department on February 25, 2004.

*SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT*

The facility received its last inspection on April 13, 2004. The Town has received a notice of intent to file suit under the Clean Water Act from a citizen group. The violations were for:

- (1) exceedances of the secondary treatment requirements for a wastewater treatment facility and
- (2) for failure to sample and report at the frequencies required by the permit conditions.

Flows have been reported as GPD in some months and as MGD other months. Dechlorination has not been installed.

Inflow and infiltration corrections have been ongoing and effective. Aerators have been installed to improve the oxidation of organic matter in the wastewater.

**WASTEWATER CHARACTERIZATION**

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

**Table 1: Wastewater Effluent Characterization**

<u>Parameter</u>	<u>Pollutant Concentration in 2003</u>
CBOD5	31 mg/L
TSS	28 mg/L
pH	7.4 to 10.3
Fecal Coliforms	20
Chlorine Residual	0.4
Ammonia as N	1.6 mg/L

**SEPA COMPLIANCE**

SEPA compliance for the facility was last done for the Facility Plan, recommending upgrade and remediation of the inflow and infiltration, prepared by Varela & Associates and approved by Ecology on March 14, 1995. No additional SEPA documents or determinations have been done since then.

**PROPOSED PERMIT LIMITATIONS**

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

**DESIGN CRITERIA**

In accordance with Washington Administrative Code (WAC) 173-220-130(1)(a), effluent limitations shall not be less stringent than those based upon the design criteria for the facility, which are contained in approved engineering plans, reports, or approved revisions. Also, in accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from 1995 Wastewater System Facility Plan prepared by Varela & Associates and are as follows:

**Table 2: Design Standards for City of Wilbur WWTP.**

Influent Flows	Effluent Flows with five months of discharge
Average Annual Flow: 114,300 gpd <sup>(1)</sup>	Average Annual Flow: 274,320 gpd <sup>(1)</sup>
Maximum Month flow : 173,700 gpd <sup>(1)</sup>	Maximum Month flow : 416,880 gpd <sup>(1)</sup>
Maximum Day Flow: 257,600 gpd <sup>(1)</sup>	Maximum Day Flow: 618,240 gpd <sup>(1)</sup>
Maximum Hour Flow: 351,400 gpd <sup>(1)</sup>	Maximum Hour Flow: 843,360 gpd <sup>(1)</sup>
BOD influent loading: 193 lbs/day	
TSS influent loading: 193 lbs/day	
Design population equivalent: 963	

(1) these flows assumed a successful inflow and infiltration remediation. That appears to be the case. The effluent flows also assume no loss to ground through percolation, which appears to be a false assumption. The flows also reflect anticipated growth that has yet to be realized.

**TECHNOLOGY-BASED EFFLUENT LIMITATIONS**

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD<sub>5</sub>, and TSS are taken from Chapter 173-221 WAC are:



**Table 3: Technology-based Limits for a surface water discharge.**

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform	Monthly Geometric Mean = 200 organisms/100 mL
Bacteria	Weekly Geometric Mean = 400 organisms/100 mL
BOD <sub>5</sub>	* Average Monthly Limit is the most stringent of the following:
(concentration)	- 30 mg/L or a CBOD <sub>5</sub> of 25 mg/L
	- may not exceed fifteen percent (15%) of the average influent concentration for WSPs
	- ** Average Weekly Limit = 45 mg/L
TSS	* Average Monthly Limit is the most stringent of the following:
(concentration)	- 30 mg/L
	- may not exceed fifteen percent (15%) of the average influent concentration for WSPs
	** Average Weekly Limit = 45 mg/L
Chlorine	Average Monthly Limit = 0.5 mg/L
	Average Weekly Limit = 0.75 mg/L

The technology-based monthly average limitation for chlorine is derived from standard operating practices. The Water Pollution Control Federation's Chlorination of Wastewater (1976) states that a properly designed and maintained wastewater treatment plant can achieve adequate disinfection if a 0.5 mg/liter chlorine residual is maintained after fifteen minutes of contact time. See also Metcalf and Eddy, Wastewater Engineering, Treatment, Disposal and Reuse, Third Edition, 1991. A treatment plant that provides adequate chlorination contact time can meet the 0.5 mg/liter chlorine limit on a monthly average basis. According to WAC 173-221-030(11)(b), the corresponding weekly average is 0.75 mg/liter.

WAC 173-221-050(6) allows the substitution of CBOD of 25mg/L for a BOD of 30 mg/L when appropriate. BOD test measure carbonaceous oxygen demand and nitrogenous oxygen demand. nitrification in WSPS is variable impact by the population of nitrifiers in the wastewater, temperature and retention time. For WSP the CBOD is regarded as a more meaningful test being a reflection of fewer variables. The final effluent limit for CBOD however is not a technology based limit. The ammonia limit requires nitrification. The microbial community's carbonaceous demand must be met before the nitrifiers successfully compete. Literature general agrees that CBOD needs to be below 20 mg/L for nitrification to proceed.

\* Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly design flow (0.417 MGD) x Concentration limit (25 mg/L) x 8.34 (conversion factor) = mass limit 86.9 lbs./day.

\*\* Monthly effluent mass loadings (lbs/day) were calculated as the maximum monthly influent design loading (193) x 0.15 = 29.0 lbs./day.

The weekly average effluent mass loading is calculated as 1.5 x monthly loading = 130.4 lbs/day.

### *SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS*

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

#### NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

#### NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

#### NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

#### ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned, the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

#### CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

#### MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

#### DESCRIPTION OF THE RECEIVING WATER

The facility discharges to Goose Creek via an unnamed ditch which is designated as a Class B receiving water. There are no other significant point source discharges in the vicinity. Significant nearby non-point sources of pollutants include agriculture and live stock grazing. Characteristic uses of a Class B receiving water include the following: stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; aesthetic enjoyment.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

Water quality of this class shall meet or exceed the requirements of selected and essential uses in the downstream section with perennial flow.

#### SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	200 organisms/100 mL maximum geometric mean
Dissolved Oxygen	6.5 mg/L minimum
Temperature	21degrees Celsius maximum or incremental increases above background
pH	6.5 to 8.5 standard units
Turbidity	less than 10 NTUs above background

Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)
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#### CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the end of pipe discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. However, the recently completed Goose Creek study demonstrated that at the sampling point downstream of the wastewater treatment plant there was no violations of the water quality standards. The wastewater effluent does not enter the receiving water during the summer low flow critical period.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: chlorine and ammonia. The average effluent ammonia concentration discharged in 2003 exceeded the final ammonia effluent limitations in the current NPDES permit, suggesting that the available dilution was better than anticipated. The 2004 effluent ammonia concentrations reported to date are significantly higher than reported for 2003. It can not be presumed that in 2004 water quality criteria are being complied with.

The resultant effluent limits for ammonia are as follows:

For anticipated monthly average flows in the next permit cycle

- 3.36 mg/L with a daily max of 6.84 mg/L.

For the future design maximum month flow

- 2.76 mg/L with a daily max of 5.62 mg/L

#### WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

Toxicity caused by unidentified pollutants is not expected in the effluent from this discharge as determined by the screening criteria given in Chapter 173-205 WAC. Therefore, no whole effluent toxicity testing is required in this permit. The Department may require effluent toxicity testing in the future if it receives information that toxicity may be present in this effluent.

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#### HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The Department has determined that the applicant's discharge is unlikely to contain chemicals regulated for human health. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

#### SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

#### *GROUND WATER QUALITY LIMITATIONS*

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

The Department believes the Permittee's discharge has the potential to cause a violation of the Ground Water Quality Standards and has imposed the following conditions in the proposed permit:

Submission of a Wastewater Facilities Plan update which shall include an evaluation of impacts to ground water of the seepage loss from the unlined lagoon cells and recommend corrective action.

#### *COMPARISON OF FINAL EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED in 1999*

Existing Limits	Proposed Limits
CBOD5 30 mg/L weekly average	CBOD5 30 mg/L weekly average
CBOD5 20 mg/L monthly average	CBOD5 20 mg/L monthly average
TSS weekly average 45 mg/L	TSS weekly average 30 mg/L
TSS monthly average 30 mg/L	TSS monthly average 45 mg/L
Percent removal - 65	Percent removal - 85
Chlorine Residual 0.011 mg/L	Chlorine Residual 0.011 mg/L
pH within a range of 6.0 to 9.0	pH within a range of 6.0 to 9.0
Ammonia as N daily max. 2.55 mg/L	Ammonia as N daily max. 6.84 mg/L

Ammonia as N monthly ave. 1.25 mg/L	Ammonia as N monthly ave. 3.36 mg/L
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## **MONITORING REQUIREMENTS**

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring of Goose Creek downstream of the wastewater treatment works is being required to verify an ongoing lack of impact of Goose Creek as was observed in 2003. Ammonia removal by the wastewater treatment works has been variable. Compliance with water quality standards based on the Goose Creek Study is not adequate given the effectiveness of the treatment works in 2004.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of Ecology's *Permit Writer's Manual* (July 1994) for wastewater stabilization ponds

### **LAB ACCREDITATION**

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*. The laboratory at this facility is accredited for: Chlorine residual and pH. For other parameters an accredited commercial laboratory is used

## **OTHER PERMIT CONDITIONS**

### **REPORTING AND RECORDKEEPING**

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

### **PREVENTION OF FACILITY OVERLOADING**

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow.



*OPERATION AND MAINTENANCE (O&M)*

The proposed permit contains condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

*RESIDUAL SOLIDS HANDLING*

To prevent water quality problems the Permittee is required in permit condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by Ecology under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the Lincoln County Health Department.

*PRETREATMENT*

*Federal and State Pretreatment Program Requirements*

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department of Ecology (Department) has been delegated authority to administer the Pretreatment Program (i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)). Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program (40 CFR 403.8(f)(1)(iii)), the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) (40 CFR 403.8 (f)(1)(i)).

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge (WAC 173-216-110(5)) (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit sixty days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading limitations included in contracts

with the POTW, and other conditions necessary to assure compliance with State water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTW's NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities (40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.).

#### *Wastewater Permit Required*

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

#### *Requirements for Routine Identification and Reporting of Industrial Users*

The NPDES permit requires non-delegated POTWs to "take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system". Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a State waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a State waste discharge permit application.

#### *Annual Submittal of List of Industrial Users*

This provision requires the POTW to submit annually a list of existing and proposed SIUs and PSIUs. This requirement is intended to update the Department on an annual basis of the status of industrial users in the POTW's service area, without requiring the POTW to go through the process of performing a formal Industrial User Survey. This provision is normally applied to POTWs not serving industrial or commercial users. Although this permit does not require performance of an Industrial User Survey, the Permittee is nevertheless required under the previous section, to take adequate continuous routine measures to identify existing and new industrial discharges.



*Duty to Enforce Discharge Prohibitions*

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet..

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, storm water and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

*Support by the Department for Developing Partial Pretreatment Program by POTW*

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

*SPILL PLAN*

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

*Compliance Schedule*

The Department believes the Permittee's discharge has the potential to cause a violation of the Ground Water Quality Standards and has imposed the following conditions in the proposed permit:

Submission of a Wastewater Facilities Plan update which shall include an evaluation of impacts to ground water of the seepage loss from the unlined lagoon cells and recommend corrective action.

The permit provides two years for preparation of the Wastewater Facilities Plan with submission by June 3, 2006. This should provide adequate time for the document to be reviewed and approved before the start of the Department funding cycle in September of 2006.

*GENERAL CONDITIONS*

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

**PERMIT ISSUANCE PROCEDURES**

*PERMIT MODIFICATIONS*

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

*RECOMMENDATION FOR PERMIT ISSUANCE*

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this permit be issued for five years.

## REFERENCES FOR TEXT AND APPENDICES

### Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.
1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.
1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.
1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

### Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

### Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

### Washington State Department of Ecology.

Laws and Regulations( <http://www.ecy.wa.gov/laws-rules/index.html> )

Permit and Wastewater Related Information

(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

### Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

### Water Pollution Control Federation.

1976. Chlorination of Wastewater.

### Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

## **APPENDIX A--PUBLIC INVOLVEMENT INFORMATION**

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on June 19 and June 23, 2003 in the Wilbur Register to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) on July 22, 2004, in the Wilbur Register to inform the public that a draft permit and fact sheet were available for review. An additional Public Notice of Draft (PNOD) will be published on September 30, 2004 in response to a comment received from the Town of Wilbur that generated a change in the proposed permit limitations. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator  
Department of Ecology  
4601 North Monroe Street  
Spokane, WA 99205-1295

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (509)329-3537 or (509)329-3519, or by writing to the address listed above.

This permit and fact sheet were written by Richard A. Koch, P.E.

## APPENDIX B--GLOSSARY

**Acute Toxicity**--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

**AKART**-- An acronym for “all known, available, and reasonable methods of prevention, control, and treatment”.

**Ambient Water Quality**--The existing environmental condition of the water in a receiving water body.

**Ammonia**--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation** --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

**Average Weekly Discharge Limitation** -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Best Management Practices (BMPs)**--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>**--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass**--The intentional diversion of waste streams from any portion of a treatment facility.

**CBOD<sub>5</sub>** – The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celcius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD<sub>5</sub> is given in 40 CFR Part 136.

**Chlorine**--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Chronic Toxicity**--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

**Clean Water Act (CWA)**--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

**Combined Sewer Overflow (CSO)**--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

**Compliance Inspection - Without Sampling**--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

**Compliance Inspection - With Sampling**--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

**Composite Sample**--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

**Construction Activity**--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

**Continuous Monitoring** --Uninterrupted, unless otherwise noted in the permit.

**Critical Condition**--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

**Dilution Factor**--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

**Engineering Report**--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria**--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample**--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial User**-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

**Industrial Wastewater**--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Infiltration and Inflow (I/I)**--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

**Interference** -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

**Major Facility**--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Maximum Daily Discharge Limitation**--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)**--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.



**Minor Facility**--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Mixing Zone**--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

**National Pollutant Discharge Elimination System (NPDES)**--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

**Pass through** -- A discharge which exits the POTW into waters of the-State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

**pH**--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

**Potential Significant Industrial User**--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

- a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;
- b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

**Quantitation Level (QL)**-- A calculated value five times the MDL (method detection level).

**Significant Industrial User (SIU)**--

- 1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;
- 2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority\* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).



Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority\* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

\*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

**State Waters**--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater**--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

**Technology-based Effluent Limit**--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)**--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**Upset**--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

**Water Quality-based Effluent Limit**--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

**APPENDIX C--TECHNICAL CALCULATIONS**

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at (<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Influent flow to Wilbur WWTP in 2003	51.7 MG
Effluent flow from Wilbur WWTP in 2003	12.5 MG
Precipitation	19 in/year
Evapotranspiration	49 in/year
Corrected for pan	39.2 in/year
Net loss to evapotranspiration	20 in/year
Lagoon acreage	13.9 ac
Net loss to ET	7.5 MG
Unaccounted for wastewater presumed lost to ground	31.7 MG

# FACT SHEET FOR NPDES PERMIT WA-004492-0

*Town of Wilbur*

## 43C070 - Goose Creek nr Wilbur

### Station overview

Overall water quality at this station is of moderate concern. (based on water-year 2003 assessment)

More [station details](#):

latitude	longitude	river mile	substrate	flow	gauging	mixing	elevation	surrounding	waterbody id	location type
47.7581	118.7342		mud				2150 ft.	farming	WA-43-2030	bridge

### Location:

From ERO, Hwy 2 to Wilbur, turn left on Donna Road Park near edge of gravel pit, sample from bank

### Goose Creek Monitoring Data

date	time	COND (umhos/cm)	FC (#/100ml)	NH3_N (mg/L)	NO2_NO3 (mg/L)	OP_DIS (mg/L)	OXYGEN (mg/L)	PH (pH)
11/12/02	10:10	331	32	0.092	2.75	0.0828	6.09	7.74
12/16/02	10:10	279	51	0.032	1.55	0.136	7.48	7.58
1/6/03	10:30	314	16	0.01 U	2.77	0.0609	8.98	7.71
2/3/03	10:15	374	2 J	0.119	2.48	0.113	8.87	7.92
3/3/03	10:05	367	2	0.018	1.97	0.0576	10.07	7.73
4/7/03	10:25	359	3	0.015	1.66	0.0416	10.3	7.29
5/5/03	09:45	394	22	0.025	1.51	0.0686	10.25	7.58
6/2/03	10:00	366	270 J	0.029	1.48	0.0332	11.51	8.21

date	time	PH (pH)	PRESS (mm/Hg)	SUSSOL (mg/L)	TEMP (deg C)	TP_PlnLine (mg/L)	TPN (mg/L)	TURB (NTU)
11/12/02	10:10	7.74	700.024	3	7.5	0.116	3.06	0.8
12/16/02	10:10	7.58	676.656	9 J	7.7	0.172	2.45	4.1
1/6/03	10:30	7.71	703.834	4	6.7	0.094	2.5	1.5
2/3/03	10:15	7.92	701.294	4	6.7	0.154	2.75	1.6
3/3/03	10:05	7.73	699.516	4	5.7	0.125	2	1.5
4/7/03	10:25	7.29	701.802	2	7.9	0.093	1.99	1.9
5/5/03	09:45	7.58	698.5	11	10.2	0.133	1.74	4.3
6/2/03	10:00	8.21	703.58	6	13.7	0.109	1.7	3.1

Common data qualifiers:

U - not detected at the reported level,

J - estimated value

Colored background   indicates that result exceeded water quality standards -OR- contrasted strongly with historical results.

Data is located at: <http://www.ecy.wa.gov/apps/watersheds/riv/station.asp?sta=43C070>

## FACT SHEET FOR NPDES PERMIT WA-004492-0

*Town of Wilbur*

Township	Range	Section	Quarter Sec.	P.O.M.
26	33	18	NE NE	@ Brace Street Bridge
Date	Flow (cfs)	Flow	remarks	
18-Apr-90	2.46			
04-May-90	1.84			
16-Aug-90	1.14			
12-Sep-90	0		unmeasureable, almost dry	
19-Nov-90	1.04			
16-Jan-91	1.52			
30-Jan-91	1.42			
12-Feb-91	2.59			
05-Mar-91	2.26			
15-Mar-91	2.171			
27-Mar-91	2.11			
10-Apr-91	2.18			
23-Apr-91	1.83			
10-May-91	1.31			
21-May-91	1.49			
06-Jun-91	0.53			
24-Jun-91	0.07		low vel/meas pt moved 15' downst	
10-Jul-91			3 gpm estimated	
23-Jul-91	0.322			
06-Aug-91	0.986			
20-Aug-91	0.933			
03-Sep-91	0.53			
17-Sep-91			4 gpm estimated	
24-Sep-91	0		dry, creek not flowing	
01-Oct-91	0		Dry	
15-Oct-91	0		Dry	
28-Oct-91	0.339			
12-Nov-91	1.068			
26-Nov-91	1.28			
10-Dec-91	1.56			
31-Dec-91	1.46			
15-Jan-92	1.67			
31-Jan-92	2.02			
11-Feb-92	1.77			
28-Feb-92	2			
10-Mar-92	2.04			
24-Mar-92	1.74			
07-Apr-92	1.75			
21-Apr-92	1.98			
12-May-92	0.579			
06-Jun-92			2-3 gpm estimated	
17-Jun-92	0		Dry	
06-Apr-93	4.67			
07-May-93	5.43			
08-Jun-93	1.22			
06-Aug-93	2.1			
02-Dec-93	2			
26-Jan-94	3.65			

FACT SHEET FOR NPDES PERMIT WA-004492-0

*Town of Wilbur*

28-Feb-94	2.95
11-Apr-94	2.9

# FACT SHEET FOR NPDES PERMIT WA-004492-0

*Town of Wilbur*

Calculate best estimate of Effluent limitations for NH3

for

Wilbur

WWTP

## Upstream Receiving Water Characteristics

Flow	cfs	2
NH3	ug/L	10
pH		7.9
Alkalinity	mg CaCO3/L	49
Temp	C	10

## WWTP effluent Characteristics

Flow	cfs	0.45
NH3	ug/L	
pH		7.7
Alkalinity	mg CaCO3/L	200
Temp	C	16

Average current  
effluent flow if no  
exfiltration from  
lagoons

## Mixing Zone Characteristics

Size of Mixing Zone	0.25	
Dilution Factor	2.111	chronic
Dilution Factor	1.111	acute

## Estimated Effluent Limits

	ug/L	
NH3	6,842	daily max
NH3	3,360	monthly average

## At Acute Mixing Zone Boundary

Alkalinity	mg CaCO3/L	184.90
pH		7.71
Temp	C	15.4

## Calculated Ammonia Criterion

acute	ug/L	9,172
chronic	ug/L	1,978

## At Chronic Mixing Zone Boundary

Alkalinity	mg CaCO3/L	120.53
pH		7.75
Temp	C	12.84

# FACT SHEET FOR NPDES PERMIT WA-004492-0

*Town of Wilbur*

Calculate best estimate of Effluent limitations for NH3

for

Wilbur

WWTP

## Upstream Receiving Water Characteristics

Flow	cfs	2
NH3	ug/L	10
pH		7.9
Alkalinity	mg CaCO3/L	49
Temp	C	10

## WWTP effluent Characteristics

Flow	cfs	0.715	Max. Month Design Flow
NH3	ug/L		
pH		7.7	
Alkalinity	mg CaCO3/L	200	
Temp	C	16	

## Mixing Zone Characteristics

Size of Mixing Zone	0.25	
Dilution Factor	1.699	chronic
Dilution Factor	1.070	acute

## Estimated Effluent Limits

	ug/L	
NH3	5,615	daily max
NH3	2,757	monthly average

## At Acute Mixing Zone Boundary

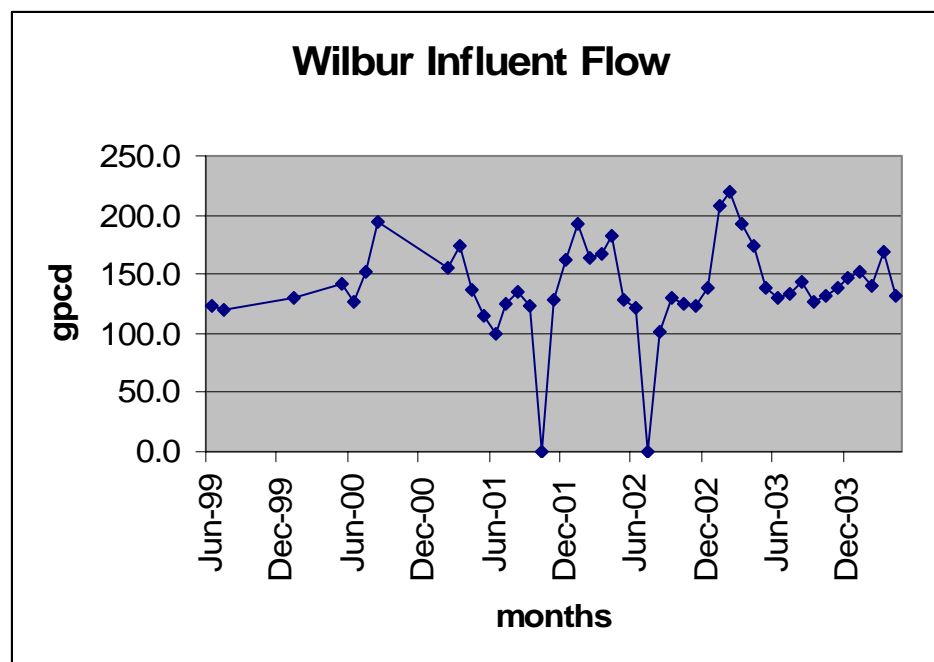
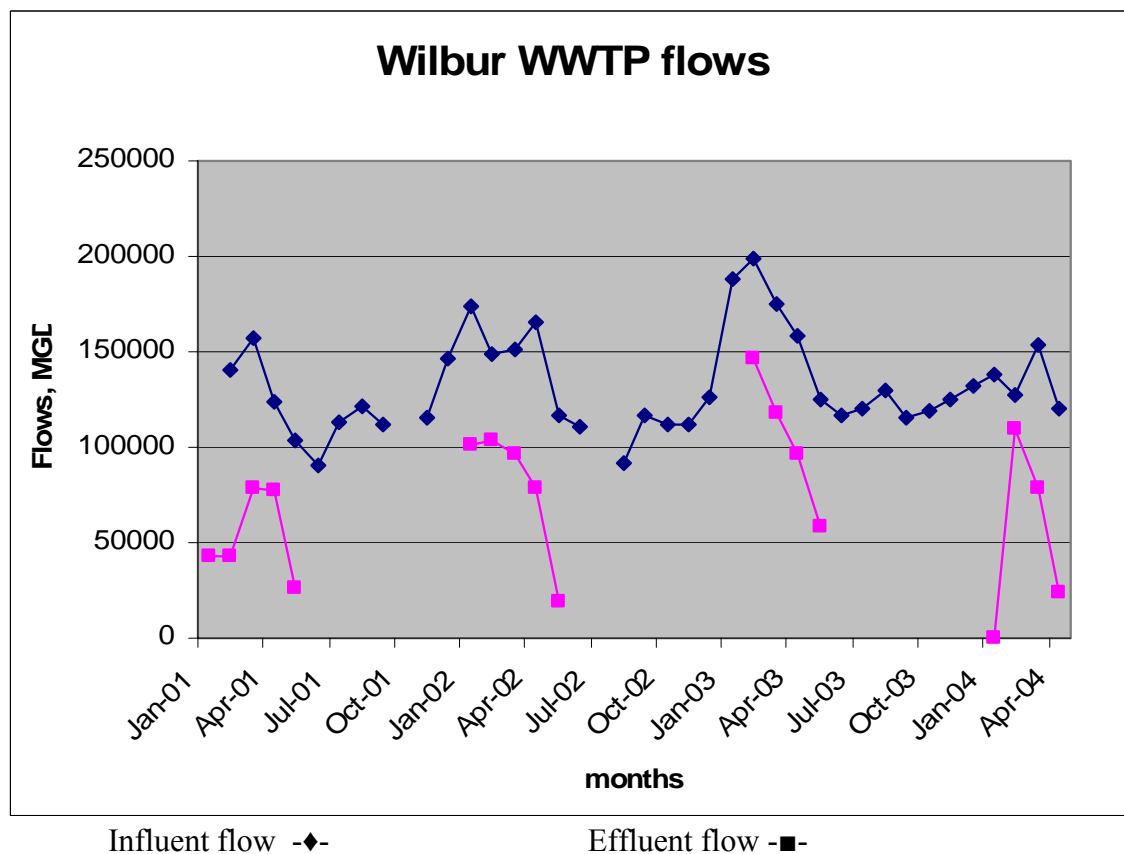
Alkalinity	mg CaCO3/L	190.13
pH		7.71
Temp	C	15.6

## Calculated Ammonia Criterion

acute	ug/L	9,202
chronic	ug/L	2,016

## At Chronic Mixing Zone Boundary

Alkalinity	mg CaCO3/L	137.86
pH		7.74
Temp	C	13.53





## **APPENDIX D--RESPONSE TO COMMENTS**

The Town of Wilbur responded to the draft permit with a comment of the effluent limitation for chlorine. The previous permit had an interim effluent limitation for residual chlorine and a final limit for residual chlorine. The proposed draft did not contain a interim limitation. The Town needs time to install a means of dechlorination or an alternative means of disinfection. The Town does have the award of funds from CDBG for planning of wastewater treatment facility improvements. However, the implementation can not extend beyond this second permit cycle.